

- 7 -

CLAIMS

1. A tap adapted for formation of female screw-threads in a plurality of metal parts, each female screw-thread being capable of imparting translational motion to a threaded second member engaged therewith, the threaded second member having a matching male screw-thread and the translational motion occurring on relative rotation between the first metal part and the threaded second member, the tap being fluteless and comprising a threaded portion with a triangular form thread with an angle of thread in the range 29°-40° and radiussed crests.
- 15 2. A tap as claimed in claim 1 wherein the angle of thread is 29° to 31°.
3. A tap as claimed in claim 2 wherein the angle of thread is 30°.
- 20 4. A tap as claimed in any one of the preceding claims wherein the tap has a chamfered first end.
5. A tap as claimed in claim 4 wherein the chamfered front end extends over at least four turns of the thread.
- 25 6. A tap as claimed in claims 4 or 5 wherein the chamfered front end has a chamfer angle in the range 5.5° to 6.5°.
- 30 7. A tap as claimed in any one of claims 1 to 6 which has at least two starts.
- 35 8. A tap as claimed in any one of the preceding claims wherein the radiussed crests have a radius of curvature in the range of 0.165 to 0.175 mm.

- 8 -

9. A tap as claimed in any one of the preceding claims wherein the roots of the threaded portion of the tap are radiussed.
- 5 10. A tap as claimed in claim 9 when the radiussed roots have a radius of curvature in the range 0.178 mm to 0.188 mm.
- 10 11. A tap as claimed in any one of the preceding claims wherein the thread has a pitch of 0.995 mm to 1.005 mm.
12. A tap as claimed in any one of the preceding claims comprising additionally lubrication grooves.
- 15 13. A tap as claimed in any one of the preceding claims comprising a shank portion extending rearwardly from the threaded portion and a rearmost portion with a plurality of flat surfaces to enable engagement of the tap by a chuck.
- 20 14. A tap as claimed in claim 13 in which at least one of the flat surfaces is precision machined in order to precisely set a distance between the front of the tap and at least one end of the flat surface.
- 25 15. A product having a tapped bore with a female screw-thread formed using the tap claimed in any one of the preceding claims.
- 30 16. A method of tapping a product in which a female screw thread is formed using a tap as claimed in any one of claims 1 to 14.
- 35 17. A method of manufacture and use of apparatus

- 9 -

which has a first metal object with a female screw-thread and a second metal object with a matching male screw-thread, the method comprising the steps of:

5 forming in the first metal object a female screw-thread using a tap as claimed in any one of claims 1 to 14;

forming on at least a part of the second metal object a male screw-thread matching the female screw-thread of the first metal object;

10 engaging the male screw-thread of the second metal object with the female screw-thread of the first metal object; and

15 rotating one of the first and second metal objects relative to the other in order to occasion translational motion of the second metal object relative to the first metal object.